ABSTRACT

Eye health is a critical aspect of global healthcare due to the importance of vision in everyday life. Glaucoma refer to eye disease that causes narrowing of the field of vision and damage to the optic nerve, is the primary focus of this research. Advances in artificial intelligence technology, particularly in pattern recognition and image processing, offer new opportunities to enhance early glaucoma detection. This study utilizes the Inception-V3 architecture, a Convolutional Neural Network (CNN) pretrained on ImageNet datasets. The research aims to implement transfer learning with Inception-V3 for glaucoma classification on fundus image data and evaluate model accuracy using data augmentation techniques and hyperparameter tuning. The study's results show that the developed model achieved an accuracy rate of 95.06% in glaucoma classification on fundus images from the EyePACS-AIROGS-light-v2 dataset. This high accuracy rate demonstrates the success of the model in detecting and classifying fundus images indicative of glaucoma. The use of deep learning technology like Inception-V3 is expected to effectively improve early glaucoma detection.

Keywords: Augmentation, Glaucoma, Hyperparameter, Inception-V3, Transfer Learning